

OPERATION MANUAL

Hydraulic Composer **WINTER BLOCKMAX 4000 / 6000**



WARNING!

***The operator must thoroughly read this manual before operation.
Keep this manual for future reference.***

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I . FUNCTIONS & CHARACTERS OF THE MACHINE TOOL

1.1. Summary

The machine is characterized with two sections which is specialized equipment for edge glued panels production. It is mainly composed of body frame, worktable, top pressure foot, lateral pressure foot, girder and hydraulic station and so on .The machine has fine appearance and easy to handle.

- This machine adopts hydraulic principle characterized by stable motion speed and equal pressing. That pressurizing from top and side can prevent the curved angle and make the assembling board glued completely.
- Inside the hydraulic system there is pressure-guaranteed structure and pressure-supplement structure which can ensure continuous gluing pressure to improve the quality of production.
- Side pusher can move to left or right a little separately according to the different specification of the work piece.

1.2. Special Instructions:

According to the hydraulic system working principals, the ideal temperature of hydraulic oil is between 30°C~55°C. When oil temperature is below 20°C, abnormal working of pressure-guaranteed structure will be caused by the cavitations due to the high oil viscosity, which easily make the system pressure release. This does not mean that the machine goes wrong and it's just a common problem caused by lower temperature. So the environmental temperature should keep more than 20°C.

SOLUTION:

1. raise the environmental temperature or work for a while to make the oil temperature rise.
2. When you can't raise circumstances temperature, please find out which side's pressure release firstly, then re-pressurize and you will find pressure releasing slow down. And it becomes normal as temperature raise after a while

. ■ with two sections, each section can work separately and also can work together, so as to keep efficient and working stability.

II . TECHNICAL PARAMETERS

| parameter | model | MH13046/1-2F |
|----------------------------------|-------|------------------|
| Power | | 380V, 50HZ |
| Max Working length | | 4600mm |
| Max Working width | | 1300mm |
| Working thickness | | 10-150mm |
| Top cylinder dia. | | Φ80 |
| Top cylinder amounts | | 10pcs |
| Lateral cylinder dia. | | Φ40 |
| Lateral cylinder amounts | | 10pcs |
| Open door cylinder dia | | Φ63 |
| Open door cylinder amounts | | 2pcs |
| Motor power for Hydraulic system | | 5.5kW |
| Rated pressure of system | | 16Mpa |
| Overall Dimensions(L x W x H) | | 5000x1700x2250mm |

III. SAFETY REGULATIONS

3.1 Summary

All the machines are well designed in function and security, but it still need careful usage and periodic maintenance. Please abide by the following mention items, which can minimize the failure rate during the machine's service life .

Only the personnel after training and authorized can operate the machine, the operator must read the operation manual carefully and understand fully. It can cause accident and loss of life and personal injury if not abide by the operation instruction. So please must read the operation manual before start the machine. Only can start up the machine when under safety circumstance. If there is any problem please do not start up and at this time should cut off power and make a sign to prevent faulty operation by unknown person. For your safety, please read safety instructions carefully before operation and service. Keep these instructions properly for further use.

Abiding by the location country's related law and standard regulations strictly during installation, usage and operation.

Don't change protective device system and control mode freely unless get written approval from manufacturer.

3.2 Safety Symbol

Meaning of Safety Symbol:



Risk of Pinching Hand

Crush Hazard, Keep Hands Away From The Press Frame.

3.3 Labor Protection Appliance

All the related personal should know and comply with the relative labor protection rules before installation and running. For example, besides protective clothing, the operator should be equipped with facilities for protecting eye, face, breath and other facilities for unforeseen circumstance.

3.4 Fire Prevention & Explosion Proofing

3.4.1 Hydraulic oil or other inflammable substances overflowed must be cleared away at once.

3.4.2 Eliminate sparks, flame and other inflammable substances. No smoking when observe or infuse hydraulic oil. Maintenance should be proceed when the machine cool fully and on "OFF" status.

3.4.3 Cutting off power before maintenance.

3.4.4 Make sure electric circuit (include connector and contactor) in normal station. Change electric wire at once when damage, scratch, lower insulation, obsolete, color fading ,corrosion and other appearance occurs. Keep the end of the wire and contactor clean.

3.4.5 Keep conducting articles (e.g. tools) far away from electrical exposure(e.g. connectors).

3.4.6 Remove inflammable or other susceptible substances when welding.

3.4.7 Enough fire extinguisher should be available when maintaining or handling the machine.

3.5. Electric Safety

3.5.1 Anyone who using this machine should not only abide by the electrical safety of following mentioned but also comply with the related law, regulation and rules of location country, as well work out the electrical safety regulation and post responsibility system according to particular case.

3.5.2 Installation or maintenance of machine should be performed by qualified technician which must comply with the law, standard and regulation (include national electrical appliance rules and other safety grounded or earthed stipulation)

3.5.3 Keep electrical working area clean, dry and enough light, insulating shoes and insulated gloves are available to worker and put the rubber pad and insulating platform under foot.

3.5.4 Always disconnect the power supply and lock the main switch "OFF" positon when maintenance and repair, at the same time to make a caution.

3.5.5 Guard against electric shock

-Avoid body contact with earthed or grounded surfaces.

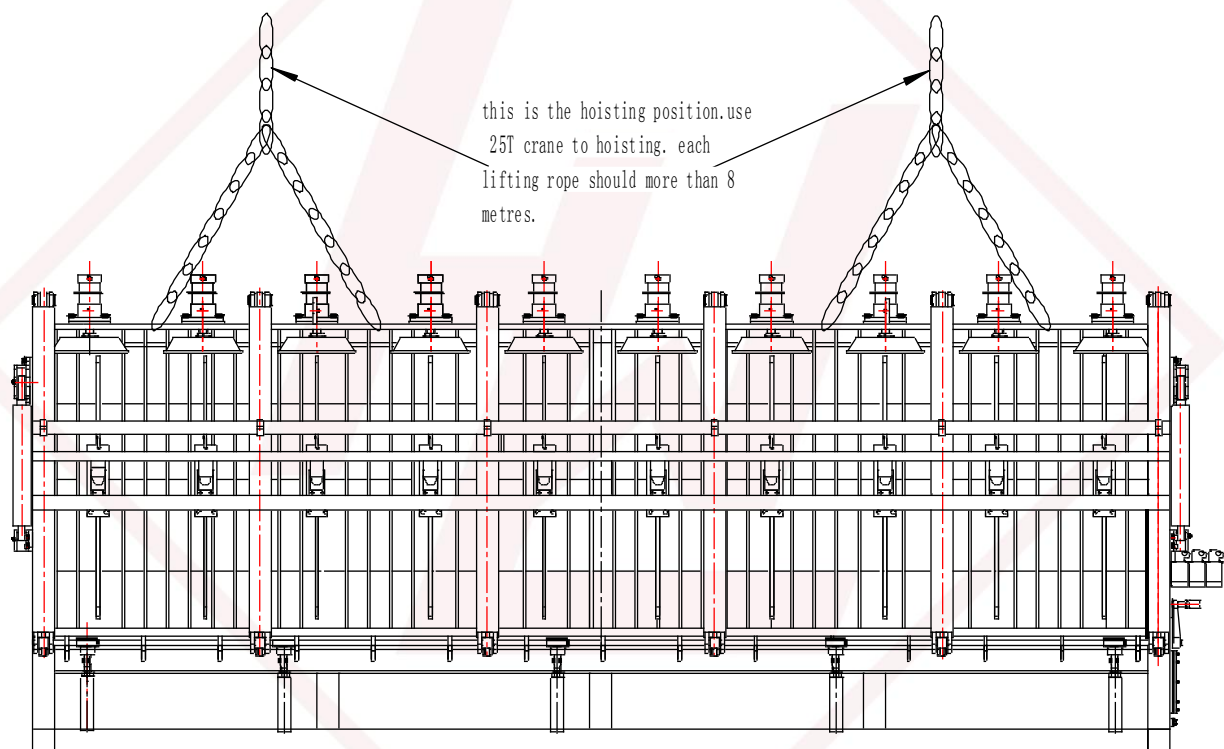
3.5.6 Do not abuse the cord

-Never yank the cord. Keep the cord away from heat, oil and sharp edges.

3.5.7 Make a periodical inspection(once a month)for electrical parts and connection points, for example, fastener, insulation, grounding are all in proper condition, if not please correct at once.

3.6. Hoisting and Transportation

3.6.1 Using the crane or hoist to hoisting the machine as the rigging plan.



3.6.2 Make a full inspection before hoisting to check connections ,welding lines, bolts and screws to ensure they are in good conditions.

3.6.3 Lifting hook should jam into buckle firmly.

3.6.4 Please avoid rocking when hoisting, hoisting is not allowed under strong wind.

3.6.5 Anybody is prohibited standing under the machine tool when lifting.

3.6.6 Please fix the machine before transportation to avoid rocking on uneven road or moving caused by emergency stop.

3.7 Environment

3.7.1 Consider work area environment

Do not expose the machine to rain.

Do not use the machine in damp or wet locations.

Do not use or store the machine in rain or moist area.

Do not use the machine in explosion atmosphere, such as the presence of flammable liquids or gases.

3.7.2 Keep work area clear

Cluttered areas and benches invite injuries.

3.7.3 Keep the work place in good ventilation.

3.7.4 Do not use outdoor

This machine is designed only for indoor working with working area dry and bright enough. It is prohibited to use out of door.

3.8 Requirement For Operator

3.8.1 Dress properly

Do not wear loose clothing or jewellery; they can be caught in moving parts.

Non-skid footwear is recommended when operating and maintenance.

3.8.2 Stay alert

Watch what you are doing, use common sense and do not operate the tool when you are tired, after drinking and having medicine.

3.8.3 Check damaged parts

Before further use of machine, it should be carefully checked to determine that it will operate properly and perform its intended function.

Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation.

A guard or other pan that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated in this instruction manual.

Have defective switches replaced by an authorized service center.

Do not use the machine if the switch does not turn it on and off.

3.9 Service and Maintenance

3.9.1 Have your machine repaired by a qualified person.

This machine complies with the relevant safety rules. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

3.9.2 Maintain machine with care.

Follow instructions for lubricating and changing accessories.

Inspect power cords periodically and if damaged have them repaired by an authorized service facility.

Inspect extension cords periodically and replace if damaged.

3.9.3 Disconnect the machine

When not in use, before servicing and when changing accessories, disconnect machine from the power supply.

3.10. Other Matters Need Attention

3.10.1 Make sure all parts of the machine tool proper before running the machine.

3.10.2 Keep the work area clean and ensure enough safety passageway to avoid scrape.

3.10.4 Cutting off power is necessary when maintenance.

After maintenance please select manual method to have a trial running and ensure all is proper then choose automatic operation.

3.10.5 Operating the machine tool according to operation manual. Disconnect power to avoid electric shock as serving the machine or opening the electric cabinet.

3.10.6 Special instruction: anybody untrained or unfamiliar with the machine tool can not be allowed to handle it.

3.10.7 Keep other persons away

-Do not let persons, especially children not involved in the work touch the machine or the extension cord and keep them away from the work area.

3.11 Hydraulic Oil

3.11.1 Recommended oil

L-HM46 anti-grinding hydraulic oil is recommended in summer

3.11.2 Health hazard

- Harmful to skin caused of frequent contact with it.
- Fogged air make people sleepy and dizzy.

3.11.3 Emergency treatment

- Inhalation: put on protector of respiration and move the patient to safety area at once. Make artificial respiration once respiratory arrest and keep rested station then have medical treatment immediately.
- Skin-touch: wash with soap and clear water
- Wash the stained clothes and shoes clearly before wearing again.
- Eye-touch: wash eye with clear water until irritant sensation clear away, if no use please have medical treatment at once.
- Eat by mistake: if swallowed by mistake, do not make emesis, keep rested and have medical treatment in time.

3.11.4 Outfire

Step as below:

- Firstly cut off power supply.
- Using dry powder fire extinguisher towards flame and blazed surface to cool it and keep everybody safety.

Special fire-protection warning:

- Sprinkle do not towards storage container directly which can cause risk of explosion.

3.11.5 Leakage handling

- Overflow to ground: eliminate the fire source and make a warning about fire and explosion for inhabitant located in downwind area. Prevent fluid flowing into sewer, waternet and bottomland.

- Isolate resident: cut off the source of hazard as far as possible. Please advise the related unit at once if the fluid flowed into the sewer or waternet or polluted land and crop to take measure to minimize groundwater pollution.
- Using yellow sand and clay adsorb overflowed fluid.
- Recycling the fluid with pump(explosion proof type or manual type) or other adsorption material. If it can not be sucked by pump because of high viscosity, please shovel up and place in proper container for disposal.
- To consult specialist about the abandonment requirement of regenerant and abide by the stipulated regulations.

3.12 Special Safety Requirement

3.12.1 Do not overreach

-Keep proper footing and balance at all times.

3.12.2 Warning

The use of any accessory or attachment other than one recommended in this instruction manual may present a risk of personal injury.

3.13 Special Safety Instructions For This Machine Tool

3.13.1 The operator must be trained and be qualified before using the machine.

3.13.2 Before operating this machine, make sure that all guards are in proper place. Never operate the machine with the guards removed.

3.13.3 Never use the machine at a hydraulic pressure exceeding the rated one. Do not modify the maximum pressure limit.

3.13.4 Free distance between the machine and barrier around must be enough to avoid crush hazard.

3.13.5 Do not climb onto the machine frame. Falling risk may occur.

3.13.6 Never use the hydraulic pipes as workpiece support. Always take care to avoid hydraulic system damage.

3.13.7 Wear eye protection when operating the machine.

3.13.8 Make sure that no persons are exposed in hazard area when opening or closing the lateral pressure door.

3.13.9 Always disconnect the power supply and lock the main switch in "OFF" position when maintenance and repair.

3.13.10 before carrying out repair or maintenance of hydraulic system, always release the residual pressure in the hydraulic system.

3.13.11 maintenance and repair must be done by the qualified person and use the specified accessories.

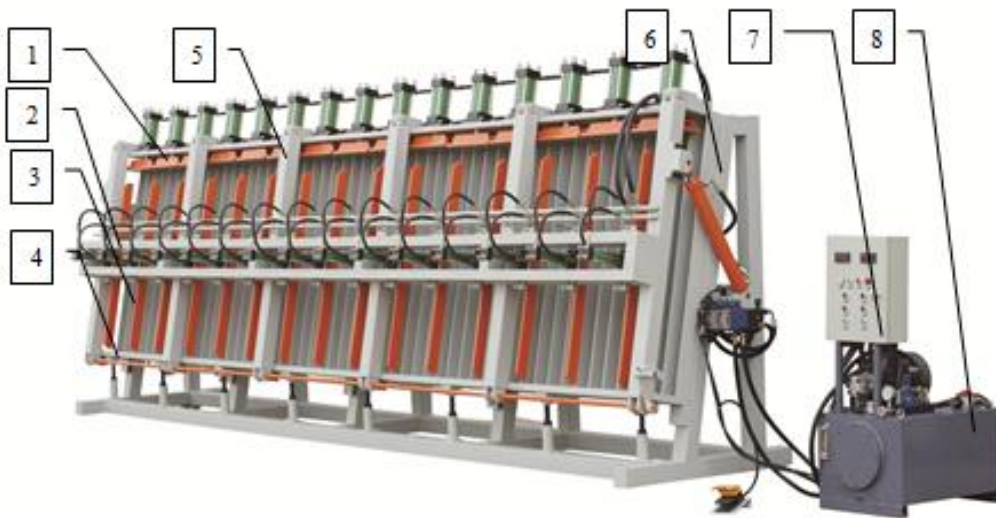
3.13.12 always use the recommended press oil according to the manual. The disused oil must be collected and drained according to local laws.

3.13.13 Agglutinant used for workpiece may be harm to health. The machine must be used in a well ventilative area.

3.13.14 check hydraulic system periodically. Change the damaged pipe and accessory in time by the qualified person.

IV. MAIN COMPONENT PARTS OF THE MACHINE TOOL

The machine is composed of body frame, working table, top pressure foot, lateral pressure foot, girder, hydraulic station and controller etc.



1. Top pusher 2. Pressure frame 3. Side pusher 4. Working Table 5. Pressure Girder 6. Body Frame 7. Control Cabin For Electrical Appliance 8. Hydraulic station

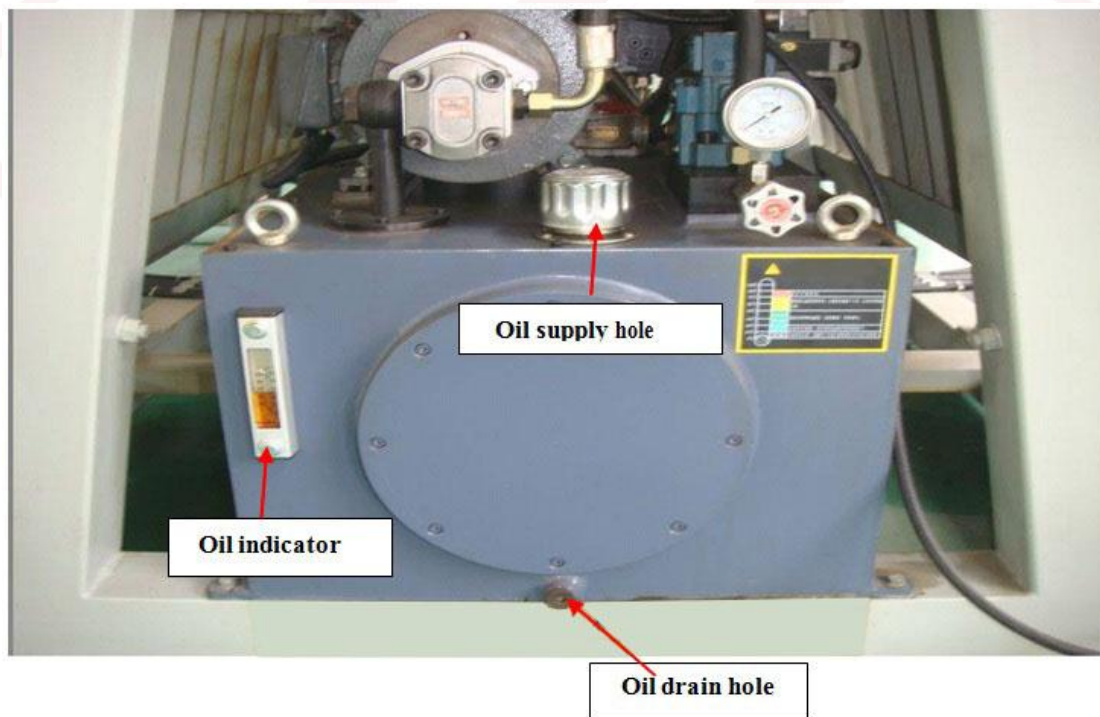
V. CARRYING & INSTALLATION

5.1 The machine chassis should be well connected with the ground to avoid rocking in work.

5.2 Free distance around the machine should be enough : for length at least one meter longer than the machine's overall length, for width no shorter than 5m.

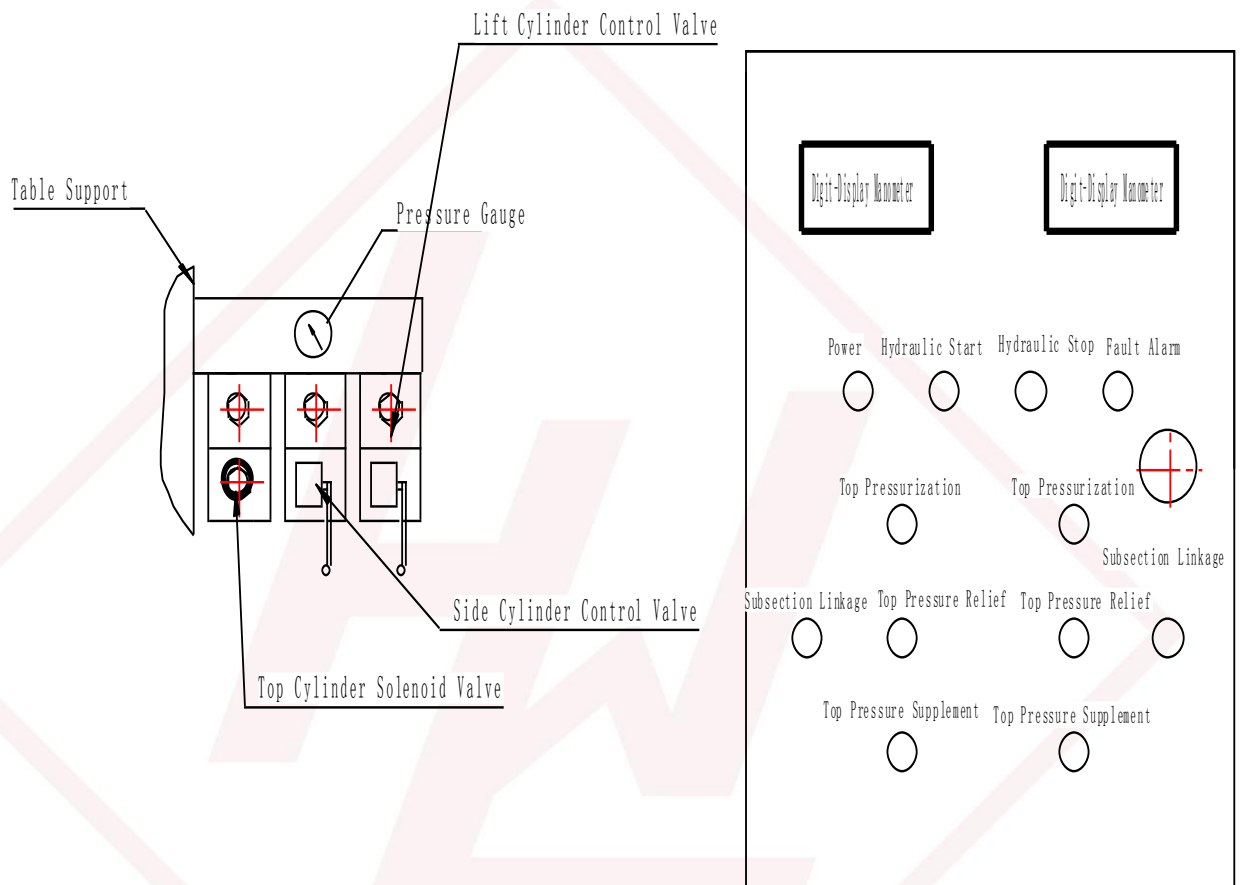
5.3 The machine should be well grounded, the ground wire must be connected with ground screw in electrical cabinet.

5.4 Through the filter of oil tank, infuse anti-grinding hydraulic oil (N46#) . After a test run, all the cylinders are full of oil, then add the hydraulic oil to the middle position of liquid indicator (shown as fig.3).



VI. INTRODUCTION TO KEYS

6.1 Electrical control panel



4 Hydraulic Electric Control Diagram

- ① power: green light means the power on.
- ② hydraulic start: start the hydraulic motor.
- ③ hydraulic stop: shut off the hydraulic motor.
- ④ Top cylinder pressurize: control the top cylinders to pressurize.
- ⑤ Top pressure release: control the top cylinder to release pressure.
- ⑥ start pressure-supplement: control the top cylinder to start the automatic pressure-supplementary work.

⑦ red alert: lighting means the scavenging filter blocked---must check and change filter.

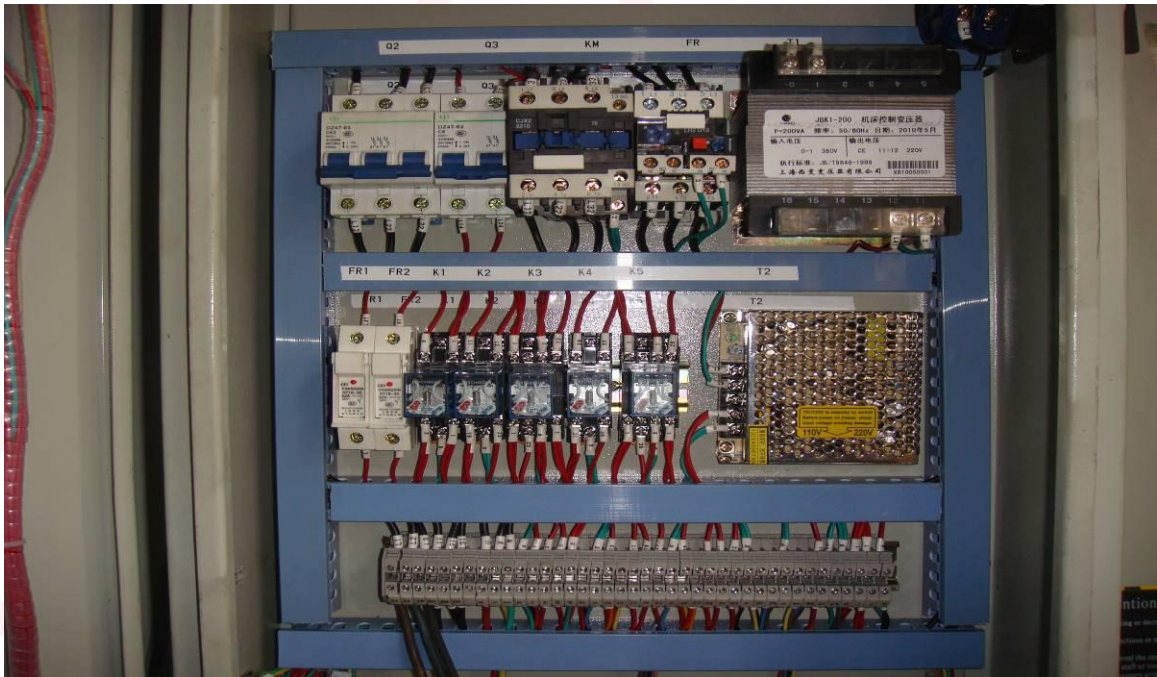
⑧ Linkage or Subsection select: each section can work independently, or two sections work together.

6.2 Foot switch: Tread the foot switch, the oil pump work on-load. At this time operating hand valve lever and solenoid valve button can be effective.

6.3 Hand valve and Solenoid valve: 3 in one. the outside one is control of side-lift oil cylinder(open door cylinder). Press down the operating lever, the door is rising and vice versa. The middle one control front (side) oil cylinder, press the operating lever, front oil cylinder foot stretch out and vice versa. The inside solenoid valve is control of top oil cylinder, press the according "pressurize "button on button box, pressure foot of top oil cylinder stretch out, press the according "release' button to take back cylinder foot.

VII. TEST RUNNING

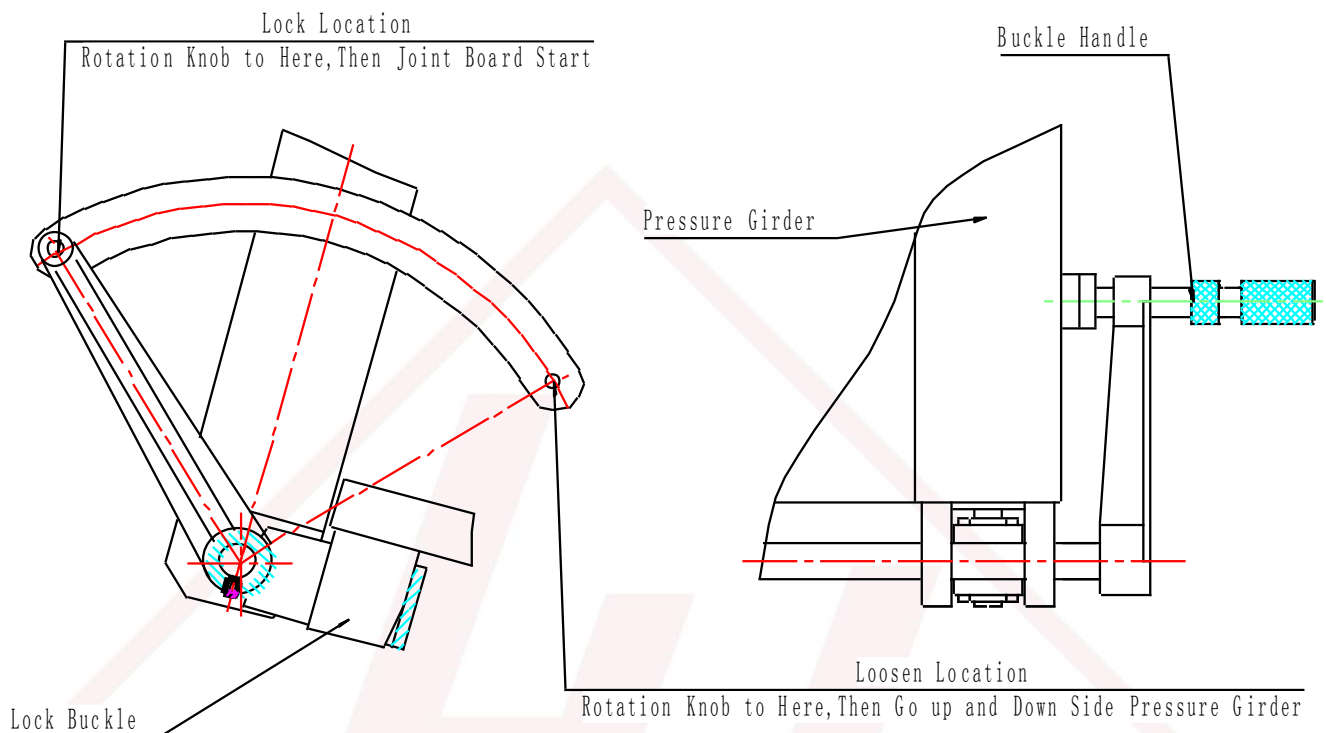
7.1 Open electrical cabinet, connect the power line with L1、 L2、 L3 separately and connect grounding wire PE terminal. Turn the air switch to position “ON”, then the “power” indicating lamp is lighting.



7.2 Press the “Start” button to examine if the motor spinning direction is in conformity with the direction shown by oil pump, make it run regularly.

7.3 Open (turn left) the pressure gauge, tread the foot switch, pressure rise to 8 MPa (Preset in the plant)

7.4 Lift and drop front pressure girder: Turn the lock handle, open the shackle, tread foot switch and press down the according hand valve lever of controlling lift cylinder, front girder rise up, vice versa.(shown in figure 6)



7.5 Top cylinder return original position: tread foot switch and press top cylinder pressurization control button then press pressure relief control button to make the top cylinder move repeatedly, at last return to initial position.

7.6 Hydraulic system exhaust: tread foot switch, lift according hand valve lever of to drop front girder. Turn buckle handle, fasten lock buckle, tread foot switch again, press down and lift the according hand valve lever to make side cylinder move repeatedly and return to original position at last. Repeat the above operation to make the air of hydraulic system vented, the driving machine will be well lubricated.

Special Attention: Staff of not familiar with the functions or not trained can not operate this machine.

VIII. OPERATION METHODS

8.1 Safety Handling Regulation

For your safety, please read safety instructions carefully before operation and service. Keep these instructions properly for further use.

- 1) Keep work area clear
 - Cluttered areas and benches invite injuries.
- 2) Consider work area environment
 - Do not expose the machine to rain.
 - Do not use the machine in damp or wet locations.
 - Keep work area well lit.
 - Do not use the machine in explosion atmosphere, such as the presence of flammable liquids or gases.
 - Do not use or store the machine in rain or moist area.
- 3) Guard against electric shock
 - Avoid body contact with earthed or grounded surfaces.
- 4) Keep other persons away
 - Do not let persons, especially children not involved in the work touch the machine or the extension cord and keep them away from the work area.
- 5) Do not force the machine
 - It will do the job better and safer at the rate for which it was intended.
- 6) Dress property
 - Do not wear loose clothing or jewellery; they can be caught in moving parts.
 - Non-skid footwear is recommended when operating and maintenance.
- 7) Keep the work place in good ventilation.
- 8) Do not abuse the cord
 - Never yank the cord. Keep the cord away from heat, oil and sharp edges.
- 9) Do not overreach
 - Keep proper footing and balance at all times.
- 10) Maintain machine with care
 - Follow instructions for lubricating and changing accessories.
 - Inspect power cords periodically and if damaged save them repaired by an authorized service facility.

-Inspect extension cords periodically and replace if damaged.

11) Disconnect the machine

-When not in use, before servicing and when changing accessories, disconnect machine from the power supply.

12) Do not use outdoor

-This machine is designed only for indoor working with working area dry and bright enough. It is prohibited to use out of door.

13) Stay alert

-Watch what you are doing, use common sense and do not operate the tool when you are tired, after drinking and having medicine.

14) Check damaged parts

-Before further use of machine, it should be carefully checked to determine that it will operate properly and perform its intended function.

-Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation.

-A guard or other pan that is damaged should be properly repaired or replaced by an authorized service center unless otherwise indicated in this instruction manual.

-Have defective switches replaced by an authorized service center.

-Do not use the machine if the switch does not turn it on and off.

15) Warning

-The use of any accessory or attachment other than one recommended in this instruction manual may present a risk of personal injury.

16) Have your machine repaired by a qualified person

-This machine complies with the relevant safety rules. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user.

8.2 Preparation For First Starting

(1) Check if the wiring is safe and reliable.

(2) Set the running parameters according to this operation manual

(3) Observe the liquid indicator in oil tank to find if the hydraulic oil is enough (should reach middle position of liquid indicator).

(4) Check if all parts are normal , if there is such case like oil leakage,water leakage,air leakage or abnormal sound.

(5) Decide unit pressure needed according to the timber material and proposal from this operation manual, so as to confirm the top cylinders' pressure.

8.3 Firstly choose the unit pressure according to the timber material(kg/cm²)

| | |
|--------------------------|-------------------------|
| hardwood type | softwood type |
| 10-15 kg/cm ² | 6-10 kg/cm ² |

The above parameters for reference only

8.4 Determine the top cylinder pressure of machine tool

After deciding the unit pressure needed, set the hydraulic system pressure P(unit Mpa, the data shown in pressuer gauge) according to length and thickness of workpiece.

$$P = \frac{L \times B \times F}{769.6 \times n}$$

L-length of workpiece (cm) B-thickness of workpiece (cm)

F- unit pressure needed for workpiece (kg/cm²)

n-cylinder amounts needed decided by workpiece length

NOTES: the workpiece width is not in count.

For example1: workpiece length 250cm, thickness 20cm, material is oak, the needed unit pressure is 15 (kg/cm²) , cylinder amounts according to length are 8 pieces, so the hydraulic system pressure should be caculated as below:

$$P = \frac{250 \times 20 \times 15}{769.6 \times 8} = 12.2MPa$$

Considering of the friction caused by side cylinders, the hydraulic system pressure can be fixed to 13Mpa.

For example2: workpiece length 120cm, thickness 20cm, material is oak, the needed unit pressure is 15 (kg/cm²) , cylinder amounts according to length are 4 pieces. So the hydraulic system pressure should be calculated as below:

$$P = \frac{120 \times 20 \times 15}{769.6 \times 4} = 11.6 \text{MPa}$$

Considering of the friction caused by side cylinders, the hydraulic system pressure can be fixed to 12Mpa.

8.5 Adjustment of system pressure



Pressure Meter Switch

Oil Return Filter

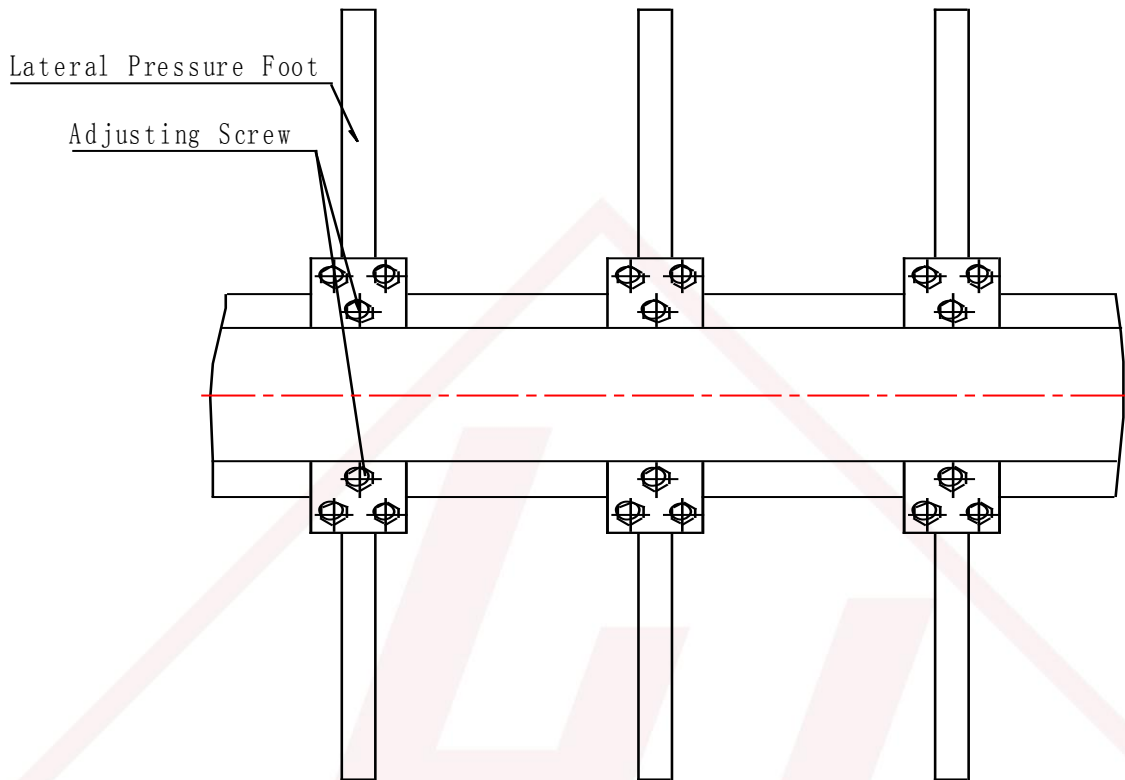
Pressure Adjustment Switch

Lock Nut

Open (turn left) the pressure meter switch on hydraulic station, tread foot switch or press down pressurize button, turn clockwise the knob of electromagnetic relief valve (pressure adjustment switch) to raise the pressure, and vice versa. Looking into the pressure meter to adjust till to needed pressure, then tight the locking screw of knob; loosen the foot switch, turn pressure meter switch clockwise, lock the pressure meter.

8.6 Lateral pusher (pressure foot) adjustment: Loosen the position bolts, move the pusher according to the length of piece to make it distribute on the piece on average, then fix the position bolts.

Special attention: either end of working piece must surpass 40 mm of the top oil cylinder middle line.



8.7 Raising front pressure girder (door)

open the lock buckle, press down hand valve lever of lift cylinder, tread foot switch, then front girder raise.

8.8 Loading

Load the glued wood chips in order, and adjust the cylinder foets to proper position. The pad between 2 coats when needed should be of rational length

Special attention: NEVER operate control system during loading and unloading material in order to avoid causing pressure girder falling to hurt person or damage the machine.

8.9 Drop down front pressure girder: lift the according hand valve lever to drop down the pressure girder, then lock the buckle.

8.10 Lateral(side) cylinder pressurize: tread foot switch, at the same time press down according hand valve lever, the side pressure foets stretch out to press the pieces flat, if not flat, please make it flat by hammer.

8.11 Top cylinder pressurize

press the according hand valve lever,at the same time tread foot switch and watch pressure gauge until rise to the presetting pressure.

8.11 Top cylinder pressurize:press the according hand valve lever,at the same time tread foot switch and watch pressure gauge until rise to the presetting pressure.

8.12 Pressure supplement system

There is supplement system on each side which effect on above cylinder, which is controlled by digital pressure transfer automaticly.When the pressure losses and lower than the lower limit(preset), the hydraulic pump controlling of supplement begin to work, supple the pressure to top limit(preset). Other worktops keep normal during this course.

Pressure-supplement system start: press down the “pressure supplement” button on control panel after top oil cylinder pressurizing is finished.

Temporary stop of pressure supplement system: press the “top pressure release” button on control panel.

Setup of pressure supplement

Digital mete adjustment: The preset lower limit is 8.0MPa and the top limit is 10.0MPa before sale, the difference is 2.0MPa.

When the material or specification changes, the lower and top limits preset should be reset again. For example: to set the lower limit to 8.5MPa and the top limit to 9.5MPa, the difference is 1MPa.The setting methods is: under the circumstance that the digital meter work well , press SET button to show CLK and number 11 subsequently(set in advance, when this number is not set as 0,then all the set parameters can not be amended), amend the number 11 to 00, press SET button again to show AL2 and number 8 subsequently, amend the number 8 to 8.5,press SET button to show AH2 and number 2 subsequently,then amend number 2 to 1,at final press SET button to confirm.

Set in plant: CLK=11 AL2=8.0 AH2=2.0

Example shown: CLK=00 AL2=8.5 AH2=1.0

in order to avoid misworking to set CLK=11

This system should be well protected against water , sun, and crash.

Special attention: Max hydraulic system pressure should not surpass 16MPa.



8.13 Unloading

- ① Press “top cylinder pressure release” button and tread foot switch at the same time, front cylinder raise up.
- ② Lift the according hand valve lever and tread foot switch at the same time to raise up lateral cylinder .
- ③ Open lock buckle and press down the according hand valve lever at the same time, to raise up the pressure girder to proper position.
- ④ Remove the finished workpiece and turn to the next process.

Special attention: raise up top cylinder before starting other working process.

Open lock buckle before raising up pressure girder.

8.14 Finish of work

- (1). Press “STOP” button, the hydraulic system motor stop.
- (2). Turn power switch(on the left side of electric box) to position “OFF”, then the “POWER” light off.

8.15 Emergency

On emergency or abnormal sound:

- (1). Turn off all the power source.
- (2). Check the machine situation until find the default causes and repair then to operate again.

IX. MAINTENANCE

9.1 Summary

Maintenance needed for this machine tool less than other machine, the monitor supervises the fluid filter and sends out the alarm signal once any case occurs at the same time shown through the light of control panel.

9.2 Daily Maintenance

Ensure oil is enough. In accordance with the operation procedures, check oil channel, cylinder and valve to avoid oil leakage. Tight the connection nuts of oil pipe, cylinder and presser foot: tight all the screws after first usage, then tight it once a month. Clear the hardened glue on worktable every shift to ensure the smooth of worktable

9.3 Maintenance For New Machine Tool After Initial Running Fifty Hours

Inspection and change oil filter element for new machine tool after initial running fifty hours.

9.4 Change Hydraulic Oil

Hydraulic system: change oil every six months and use antiwear hydraulic oil YB-N46, be careful about oil gauge and check if oil is enough.

9.5 Maintenance For Oil Filter

The monitor sends out alarm signal if oil return filter jams, at this time cutting off the power at once, then unscrew the cap of the oil return filter and take out the filter net, then wash clean with gas and put it into filter, change the damaged filter net at once.

X.COMMON FAULT AND SOLUTION

| Breakdown | Reason analysis | Elimination method |
|-------------------------------------|---|--|
| The generator does not spin | <ol style="list-style-type: none"> 1. wrong power 2. The thermal relay has not been repositioned. 3. The generator lack of phase. 4. The control circuit has breakdown 5. The AC contactor controlled by PLC has breakdown | <ol style="list-style-type: none"> 1. Inspect the 380v power source and the zero curve. 2. Replace thermal relay auxiliary point manually. 3. Inspect and recover the lack phase. 4. Inspect and repair according to Electrical principle. 5. Check YO terminal and fuse. |
| The system pressure be always zero. | <ol style="list-style-type: none"> 1. hydraulic generator is reversal. 2. Inspect if the oil is enough 3. The sucking tube jamed or gas leaks out. | <ol style="list-style-type: none"> 1. Only exchange two phase of powersource. 2. Pour oil. 3. Inspect and clean |

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| | <p>4. Electromagnetic spillover valve core is blocked</p> <p>5. Electromagnetic spillover valve coil falls off or burned</p> <p>6. Auxiliary relay K1 not in good condition.</p> | <p>the sucking tube.</p> <p>4. Clean or change the spring.</p> <p>1. Connect or replace it.</p> <p>6. Check or change it.</p> |
| <p>cylinders pressure release quickly.</p> | <p>1. there is air in the system after maintenance when dismantling piping is necessary (mainly in oil cylinders)</p> <p>2. Some oil cylinder inner leakage</p> | <p>1. Make cylinders move repeatedly to discharge the air, if not useful, please loosen the takein pipe of end cylinder to drive out oil to discharge air, and turn tightly the nut immediately.</p> <p>2. Under pressurizing condition to test each cylinder one by one, once find pressure meter changes quickly, which means this cylinder has inner leakage, then replace the seals (see the cylinder repair</p> |

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| | | chart). |
| Top cylinder pressurize or release out of control, but the others keep normal | <ol style="list-style-type: none"> 1. PLC doesn't work. 2. Protector tube turnoff. 3. Switching Power supply without output. 4. Auxiliary relay controlling of hydraulic pressurizing doesn't work. | <ol style="list-style-type: none"> 1. Check if the indicator is lighting, and repair. 2. To eliminate breakdown and change. 3. If both indicators of PLC and instrument are off, please check it. 4. Check if the voltage of auxiliary relay Y1 to K1 is 220v, or change the relay and fuze. |
| The siren above button box alarm | The filter (oil go back) is blocked. | Examine and change the core of filter. |

XI、 CHART OF PRINCIPLE

